



Fusarium toxins

Issues related to the starch industry



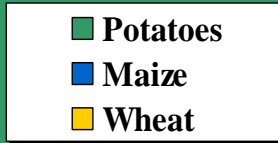
Fusarium toxins - Issues related to the starch industry

The AAC – Association des Amidonniers de Céréales de l'U.E.

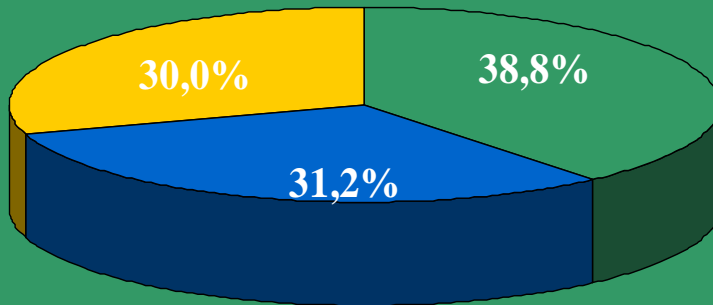
- 17 companies
- 37 plants
- 12.5 million tons of cereals used
(40 % = co-products
60 % = starch and starch derivatives)
- 7 million tons of starch and starch derivatives
(53 % sold in food
47 % sold in non-food)
- 14 000 employees
- Annual turnover of 5.4 bn Euro



Starch Production in the EU - 2002



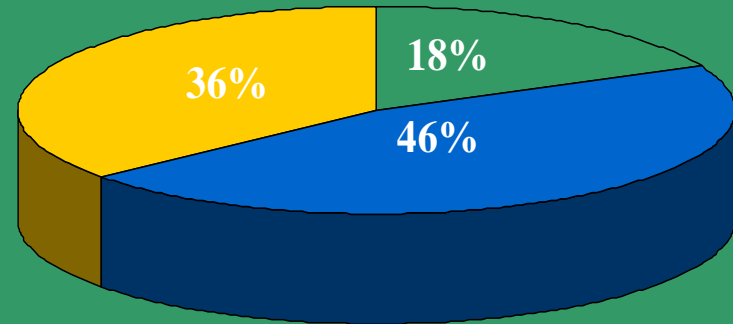
Raw Materials



Total :20.3 mio tons



(Starch Equivalent)
Starch Products



Total : 8.6 mio tons

Applications of starch and derivatives

Food and drink



Paper and board



Industrial applications

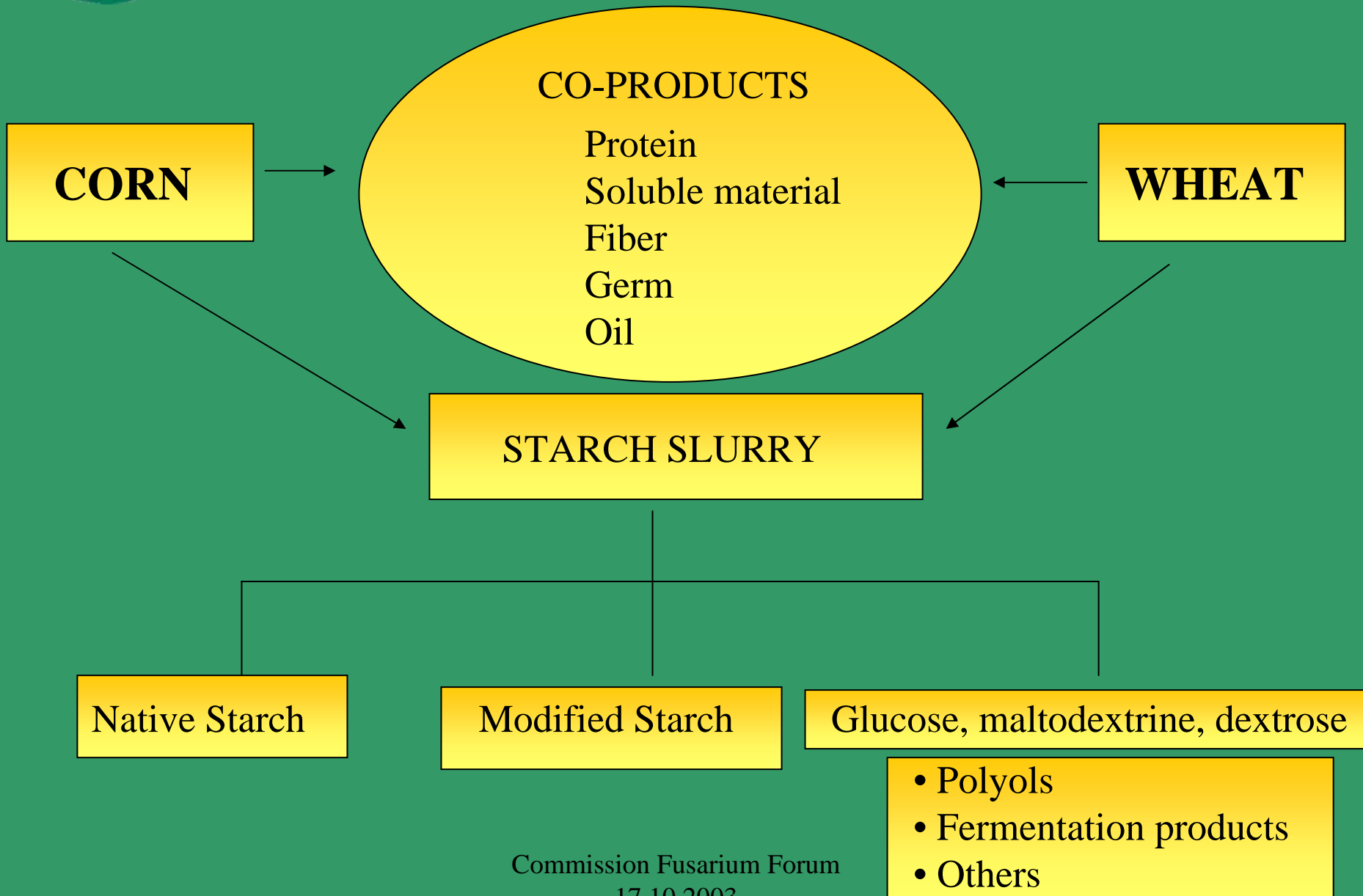


Pharmaceuticals and cosmetics



Pet food and animal feeds





Decisions should be based on food and feed safety

If safety is not an issue → no limits, guidelines are sufficient

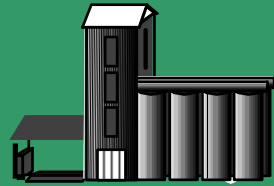
⇒ Therefore no limits on zearalenone and fumonisin

If safety is an issue, envisage preventive measures

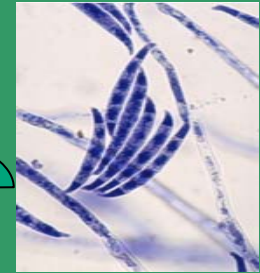
⇒ code of good practice (HACCP)

- resistant varieties
- crop rotation
- crop protection
- ploughing

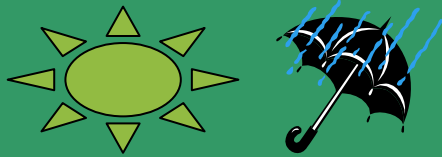
Fusarium toxin : field mycotoxin



STORAGE



FUSARIUM species



CLIMATE



AGRICULTURAL PRACTICES



PRECEDING CROP



If safety still an issue despite good practices

⇒ limits should be based on risk analysis, taking into account

- sensitivity of population groups (e.g. baby food)
- sensitivity of different animal species

If limits are applied ...

Realistic, achievable, consistent, controllable

- ⇒ should not restrict crop availability
- ⇒ importance in diet to be considered
 - cereals to be treated differently depending on consumption patterns
 - low daily intake of certain ingredients to be taken into account (e.g. wheat gluten)

If limits are applied ...

- ⇒ consistent between raw materials/ingredients/end-products (food and/or feed)
 - i.e. taking into account concentration/dilution factors
- ⇒ consistent with Codex recommendations and third country legislation
- ⇒ applicable to imported goods

If limits are applied ...

⇒ must be controllable on all products on which limits are set, through

- validated methods of analysis
- reliable sampling methods



CORN
Harvest 2001
15% >2000 ppb

CO-PRODUCTS
Protein
Soluble material
Fiber
Germ
Oil

WHEAT
Harvest 2000
16% >1000 ppb

STARCH SLURRY

Native Starch

Modified Starch

Glucose, maltodextrine, dextrose

- Polyols
- Fermentation products
- Others

**Very low levels of Fusarium toxins
detected in starch, none in hydrolysates**

Conclusions

Before a decision is made to set limits improve agricultural practices

⇒ Limits should be based on health concerns

⇒ Limits should take into account

- crop availability
- importance in diet
- consistency between raw materials/ingredients/end products

⇒ Coherence must exist between food and feed applications

Acceptable DON limits for the starch industry

- ⇒ 1 500 ppb for wheat
 - ⇒ Postpone decision on corn until sufficient data is available
 - ⇒ Proposed Commission limits on certain derived products to be increased
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- **No limits on zearalenone and fumonisin**
 - **only guidelines for farmers**